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DYNAMICS OF COGNITIVE AND BEHAVIOURAL THERAPY-RELATED FMRI CHANGES IN OBSESSIVE COMPULSIVE DISORDER USING A PERSONALISED SYMPTOM PROVOCATION TASK

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Background: Cognitive and Behavioural Therapy (CBT) is a successful treatment of obsessive-compulsive disorder (OCD). It is known to induce changes in cerebral metabolism, but the dynamics of these changes and their relation to clinical evolution remain largely unknown, precluding the identification of individualized response biomarkers.
Methods: We performed systematic clinical and fMRI evaluation of 35 OCD patients immediately before a three-month course of CBT, halfway through and at its end, as well as 6 months after in order to study the dynamics of treatment response. To sensitize fMRI probing, we used an original exposition task using neutral, generic and personalised obsession-inducing images.
Results: CBT produced a significant improvement in OCD, already predicted by response at midtherapy (r^2=0.67, p< .001). Initially, patients were more sensitive to personalised than generic or neutral images and had stronger related activations in the anterior cingulate, orbitofrontal and parietal cortices. In the high responder group (ΔYBOCS>45%), behavioural sensitivity to generic stimuli was reduced, even more so for personalised ones. Clinical improvement was markedly concomitant to a decrease of activity in the anterior cingulate and left but not right orbitofrontal cortices.
Conclusions: Using an innovative and highly sensitive exposition paradigm in fMRI, we show that clinical and metabolic phenotypes have parallel evolutions during CBT. Our results, which suggest that the initial CBT sessions are crucial, prompt us to investigate the anatomo-functional modifications underlying the earlier stages of the therapy.

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